

We thank editor for pointing out some technical errors.

Sect 3.4: Please remind the reader that the cluster analysis data uses UMR mass spectra so that there is no confusion regarding the O:C calculation.

Response: We have reminded reader that the O:C calculation is based on measured values of f44 from UMR mass spectra.

Please re-emphasize in the conclusions that this BBOA is aged and that these conclusions do not necessarily apply to fresh emissions.

Response: We have re-emphasized in the Conclusion that this is the first study to quantify the mixing state of BBOA,  $K^+$  and rBC in aged biomass burning plumes using the LS-SP-AMS.

Fig. 2 – In the legend please add that the mass spectra are black/green and the histograms are red.

Response: We have added the information to the caption of Figure 2.