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Interactive comment on "Virtual disjunct eddy covariance measurements of organic compound fluxes from a subalpine forest using proton transfer reaction mass spectrometry" *by* T. G. Karl et al.

T. G. Karl et al.

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We want to thank the reviewer and editor for helpful comments, which helped to improve the manuscript. Our response to specific issues is summarized below:

(1) Comment on Micrometeorological Techniques: We have expanded the paragraph about micrometeorological measurement techniques in the Introduction section; the revised version of the paper discusses the most common approaches for measuring canopy scale fluxes in more detail and comments on the advantages and disadvantages of each technique.

(2) Correlation between M69+ and 87+: Typos (percent values listed in the text) were

corrected; as the editor pointed out, the correct regression is shown in figure 2. Figure 2 shows raw data sampled at a rate of 0.2 s. The scatter among the datapoints is caused by two reasons: (a) Natural variability due to uncorrelated noise, which can be calculated according to the Poisson statistic (see Appendix). The dashed lines (standard deviation - sigma) show upper and lower bounds due to counting statistics. Further analysis shows, that only 7 % of all the datapoints in figure 2 lies outside the one-sigma lines. (b) Five additional ions were scanned between m/z 69+ and m/z 87+. Therefore m/z 69+ and m/z 87+ were only measured within ˜1-2 seconds Ű especially the high frequency correlation (<2s) between m/z 69+ and m/z 87+ is therefore lost. For these reasons figure 2 is redrawn, which now shows the correlation for 30 min averages (including the s-lines for a ˜ 40 second integration time (200 samples / 30 min x 0.2 s dwell)) and is probably more appropriate; this reduces the noise level that might lead to the assumption that the correlation is rather poor. Interference: In addition we did not see any other major compounds that could interfere with mass 87+ (mainly other C5 aldehydes or alcohols) by the GC-FID; this leads to the conclusion that the main compound exhibiting m/z 87+ is indeed 2,3,2 MBO. Also, if a major systematic bias from another unknown compound exhibiting m/z 87+ was present, the overall regression in panel 1 would most likely be much different from the regression in panel 2 (from the MBO standard injection).

(3) Reorganizing the Results section: As suggested the Results section was reordered and partially rewritten. It is now focused on the main findings (3.1 laboratory tests, 3.2 observed fluxes and 3.3 box model sensitivity analysis), grouped in three separate sections. In addition, as suggested, the discussion of the results from the box model sensitivity analysis was expanded.

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