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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Eddy covariance fluxes of acyl peroxy nitrates (PAN, PPN, and MPAN) above a Ponderosa pine forest" *by* G. M. Wolfe et al.

G. M. Wolfe et al.

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We thank the referee for taking the time to review and provide critical feedback on our manuscript. Our responses to the referee's questions and comments are outlined below.

Reviewer: "The datasets presented in the manuscript will be highly valuable to help test computer models that account for micrometeorological, canopy and atmospheric chemical processes. Is it planned within BEARPEX to also include modelling studies?"

Response: Indeed, we (Wolfe and Thornton) are currently constructing a 1-D chemistry-transport model to test our understanding of the multivariate processes which control concentration and transport of reactive species in the Blodgett canopy.

We hope to have results from this model in the near future.

Reviewer: "1. Since this is the first paper of the BEARPEX special issue it is desirable to extend section 2.1 with a more comprehensive characterization of the sampling towers and of the meteorological measurements, including some photos (possibly partly in supplementary material)."

Response: As we reference in footnote 1 on p.17499, an overview paper for the BEARPEX intensive is currently in preparation. While we understand that readers would find this information useful for visualizing the experiment as a whole and placing our paper into the context of the greater BEARPEX goals, we feel that it is best to leave such details to the overview paper to minimize overlap between publications. Additional information can also be gleaned from references to previous work at Blodgett cited throughout the manuscript.

Reviewer: "2. Since the capability of measuring additional APNs is indicated (p.9 "A larger suite of APNs were monitored..") it would be nice to see some of these results, e.g. by adding one figure and mentioning some salient features in the text."

Response: Though the additional APNs have some interesting features, including this data would raise a number of additional questions which we cannot address in the current manuscript. Moreover, their contribution to the total APN budget is quite small ($<$5%), and we do not make mention of them anywhere else in the manuscript. Thus, we have decided to remove mention of these additional observations. We hope that a future paper will explore these measurements in more detail.

Reviewer: "3. p.23: What is meant by "instrumental issues during wet period"?"

Response: During rainy periods, the sonic anemometer often ceased to function, likely because of water droplets forming on the transducer head of the anemometer that interfere with the instrument signal. We have changed the text to read "... due to sonic anemometer failure."

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Interactive Comment