

Interactive comment on “High-accuracy continuous airborne measurements of greenhouse gases (CO₂ and CH₄) during BARCA” by H. Chen et al.

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I fully agree with the general remarks by the reviewers concerning the importance of this paper and the technical comments. Given my background, I would like to stress two aspects, mainly the pressure broadening effect and transferability:

1) The paper in its current state does not allow to separately quantify water vapor dilution and the pressure broadening effect. This is very unfortunate and should be improved in view of future work with similar analyzers and for comparisons with analyzers using other techniques and wavelength. Given the potential for future developments

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and applications of this type of analyzers, I should also mention that for eddy covariance measurements, the water vapor dilution can be corrected for by independent water flux measurements. For pressure broadening effects, this is not possible and thus of great importance in the corresponding scientific community. In fact, these aspects have already been quantified and published in Neftel, A., et al. *Agric. Forest Meteorol.* (2009), doi:10.1016/j.agrformet.2009.07.013.

2) Transferability is highly relevant. However, comparing two analyzers is statistically not significant. It would be very helpful to add data from more analyzers and/or different points in time. Otherwise, the conclusions about transferability should be made with much more care.

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