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Atmospheric Measurement Techniques Discussions

Interactive comment on "Flux correction for closed-path laser spectrometers without internal water vapor measurements" *by* R. V. Hiller et al.

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We thank all reviewers and contributors for their comments on our manuscript, in particular Dayle McDermitt who was able to constructively pinpoint a relevant issue that needs to be revised in our manuscript and which will strengthen and improve our paper. The reviewers mainly propose important modifications in terminological details that definitely will improve our manuscript but do not affect the content of our manuscript, including the conclusions, as we will explain our reply to the reviewers below.

The way how we referred to the WPL correction in the manuscript was rather unfortunate and left a completely wrong impression – our paper only referred to the WPL correction when it comes to the empirical approximation of the correction that is necessary to correct flux measurements effectuated with a closed-path methane analyzer

of the type we used under absence of concurrent water vapor concentration measurements. To address this strong critique expressed by Reviewer #1 we will reorganize our material to make clear that we are not debating on the widely used WPL correction and hence will focus our work more on the spectroscopic effect that needs to be corrected for besides the generally accepted need for correction for density fluctuations. Namely, Section 2 which is now prominently headed as “Background” will be reduced and incorporated into “Material and Methods” to make clear that this is not the background of our work, but only a summary of what the generally used density flux correction suggests. To make clear that this density flux correction is not a perfect approach and that other arguments are around as presented by Reviewer #1 we will add a short paragraph with a critical discussion on the generally used approach to correct flux measurements for density fluctuations. Since this is not the key topic of our paper, we will make sure in our revisions that it becomes clear that this part does no longer appear to be the key message as Reviewer #1 wrongly assumed.

In the supplement, we assess the critical points raised by our reviewers and how we will incorporate their helpful suggestions into the revised manuscript.

Please also note the supplement to this comment:
http://www.atmos-meas-tech-discuss.net/5/C695/2012/amtd-5-C695-2012-supplement.pdf

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Interactive comment on Atmos. Meas. Tech. Discuss., 5, 351, 2012.