

Interactive comment on “Line-averaging measurement methods to estimate the gap in the CO₂ balance closure – possibilities, challenges and uncertainties” by Astrid Ziemann et al.

Anonymous Referee #1

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General comments:

The scientific question of this manuscript is clear and this study is innovative. The paper is well structured in the sections of instrumentation, data analysis and uncertainty estimation. I would suggest an improvement of the Introduction section, and a further discussion about the temporal pattern of the advection term on the basis of Fig. 18. Additionally, English language should be double checked.

Specific comments:

Introduction section

C1

- Page 2 Line 8 says 'significant values', and Line 31 mentioned the threshold value of '5 $\mu\text{mol m}^{-2} \text{s}^{-1}$ '. It would be better to organized them into one paragraph.

- Page 2 Line 27 talks about the recent measurements of advection, while Page 3 Line 12 talks about the uncertainties of these measurements. It would be better to organized them into one paragraph.

- Page 3 Line 33. Separate the texts from 'Consequently' as a new paragraph.

English check, such as:

- Page 2 Line 17 should be 'with V_m as..., c as..., t as...'

- Page 2 Line 31. single sentence merge to a paragraph.

- Page 7 Line 21 to Page 8 Line 6. and Page 8 Line 30 should be written in past tense.

Page 8 Line 5: 'class-a-pan' should begin with capitalized letter.

- Page 8 Line 25: should be 'which was equipped'.

The two equations in Eq. (3) can be numbered separately.

Fig. 1 can be merged with Fig. 2.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-94, 2017.

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