

# ***Interactive comment on “Optimal use of buffer volumes for the measurement of atmospheric gas concentration in multi-point systems” by A. Cescatti et al.***

## **Anonymous Referee #3**

Received and published: 9 August 2016

I find this study is well-conceived, logically- and clearly-written and contributes substantial scientific progress. The scientific content in the manuscript was well designed and carefully conducted. Authors explored various concentration measurement setups below and above canopy and at three different sites in order to optimize the use of buffer volumes. By simulating the buffer volumes' effect on time series of high-frequency CO<sub>2</sub> concentration at different setups, the proposed simple but scientifically comprehensive weighted arithmetic means (WAM) was proved to reduce the mean absolute errors significantly. Authors also found that the resulted empirical relationship between volume renewal frequency and sampling frequency offers an promise to properly dimension the Buffer Volume. I highly recommend this excellent manuscript to be accepted for

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publication of Atmospheric Measurement Techniques. I can only find very few point for revision:

MINOR: 1. In the abstract or conclusion, it is better to say explicitly or highlight that your newly-explored method is weighted arithmetic means (WAM). Also abstract and conclusion don't need to be overlapped.

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-18, 2016.

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