

Interactive comment on “Technical Note: Possible errors in flux measurements due to limited digitalization” by Thomas Foken et al.

Anonymous Referee #2

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This technical note aims to quantify the effect some of commonly encountered errors on raw eddy-covariance data have on fluxes estimation. In particular, the authors focus their attention on digitalization errors affecting data from gas-analyzers and R2 and R3 sonic anemometers. Having compared original NEE estimates with those obtained after being contaminated by simulated errors, the authors conclude that the flux bias is negligible.

The paper is well structured and addresses important issues in long term analyses of eddy-covariance (EC) data. In principle, I agree with the authors findings, however:

a) the authors should explain in more detail the simulation design, highlighting drawbacks and advantages of their choices.

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b) I would suggest to use data sampled in more than one site in order to achieve robust estimates. Further, in the comparison of NEE estimates, I suggest i) to use an error-in-variables model and ii) to interpret results on the basis of confidence intervals rather than on point estimates.

c) considerations about consequences errors can have on other methods involved in EC data processing need to be discussed. If bias introduced by digitalization errors on flux estimates is negligible, what are advantages of using error free data? I would invite the authors to discuss about the effects they could have on other procedures (eg on uncertainty quantification at half-hourly time scale, on spectral correction factor estimates).

d) In Section 3.1, the authors affirm that “From a theoretical point of view the digitalization error should only impact small magnitude fluxes”. I’d suggest to provide more details about this statement.

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