

Interactive comment on “Random uncertainties of flux measurements by the eddy covariance technique” by Ü. Rannik et al.

Anonymous Referee #2

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General comments

This paper compares different methods for estimating the random error of eddy covariance flux estimates. Although the paper is well written, the novelty of the presented research remains unclear. I cannot find substantial new insights compared to the study of Billesbach (2011). Indeed, the Wienhold et al. (1995) has also been compared, but only to reach at the conclusion that it gives almost the same error estimate as the well-established method of Finkelstein and Sims (2001). With respect to the error for instrumental noise, it was already proposed by Mauder et al. (2013) to apply the approach of Lenschow et al. (2000) for eddy-covariance measurements and not only for lidar data, for which it had been developed. So, this aspect is also not really innovative. Moreover, one other important method for estimating the random flux error has not been considered at all. Salesky et al. (2012) proposed a promising method that is

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based on local flux decomposition and demonstrated clearly its advantages over other existing methods, such as the ones of Finkelstein and Sims (2001), because it does not require an estimate of the integral time scale. However, the Salesky paper is not even cited anywhere in the manuscript. In summary, due to the lack of novelty and due to an incomplete consideration of existing literature, I cannot recommend this manuscript for publication in this journal.

Salesky S, Chamecki M, Dias N (2012) Estimating the random error in eddy-covariance based fluxes and other turbulence statistics: the filtering method. *Boundary-Layer Meteorol* 144:113–135.

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