

Interactive comment on “EddyUH: an advanced software package for eddy covariance flux calculation for a wide range of instrumentation and ecosystems” by I. Mammarella et al.

Anonymous Referee #1

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General comments

A thorough software comparison is an important exercise for a new software package in order to characterize its performance and capabilities. EddyPro has become probably the widely used eddy covariance software and it has been tested against other software. Therefore it makes sense to use this software as an inter-comparison partner for the new software package Eddy UH, which is introduced in this manuscript. Perhaps it could have been even more interesting to compare include also other software in this exercise, but this point is not critical. As pointed out by the authors, the outcome of any flux calculation, however, does not only depend on the software package itself but also on the settings applied in a specific software, i.e. the order and selection of

C1

single processing steps and correction algorithms. Some details about the implementation of different processing options can only really be understood by the developer of a specific software. Therefore, I would like to encourage the authors to include Gerardo Fratini, the developer of EddyPro, in this study. I believe the interpretation of the differences between both software could benefit from his experience a lot. Regarding the title, I am not sure if the second part of it “for a wide range of instrumentation and ecosystems” is really supported by the presented results, given the fact that only two different data sets were investigated. Nevertheless, this study is timely and at least in part original. For example, the inclusion of methane fluxes in such a software comparison is novel and therefore increases the value of this study. Up to now, not much was known about the uncertainty of methane fluxes due to the post-processing algorithms. Furthermore, this study not only presents a software inter-comparison, but also a sensor inter-comparison between different gas analysers, including the relatively new LI7200. In addition, investigating the effect of the use of different software on the cumulative fluxes is novel and interesting for a larger readership. The paper is generally well written, clearly structured and the figures are clear and informative. Therefore, in summary I recommend that this manuscript can be accepted with minor revisions.

Specific comments

P13 L8: It is therefore rather a unit conversion and not a correction.

P13, L24: Could it not also be possible that the problem lies not in the spectra but in the transfer function, which might not be appropriate for this set-up when the displacement is mostly vertical rather than horizontal, so that the theoretical method is overcorrecting?

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C2