

Interactive comment on “A comparison of methods for determining field evapotranspiration: photosynthesis system, sap flow, and eddy covariance” by Z. Zhang et al.

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The manuscript submitted by Zhang et al. is a comparison of upscaling techniques to estimate landscape level transpiration fluxes. The authors present results based on leaf-level, sap flow, and eddy covariance observations. Each of these methods have different strengths and weakness, yet are based on measurements of fluxes a vastly different scales. The inter-comparison of these methods is a difficult challenge facing the hydrology and earth systems science community, and therefore an excellent topic for this journal.

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Overall, I find this paper very well written and sufficiently detailed. Both the figures and tables are helpful in conveying the subject matter. My main concern with this paper is the propagation of errors in the assessment of flux uncertainties. Errors in the soil flux are examined in detail, but should also be addressed and discussed for the other upscaling methods (1-6) in a consistent manner. Section 3.3.6 should be reworked into a separate subsection (3.4) detailing the uncertainties of each upscaling method and how the propagation of the uncertainties affects confidence in each of the final flux approaches. What are the drivers of uncertainties at each scale of measurements, and what approaches then produce the most reliable result?

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