

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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A well analyzed article. One particular aspect that can influence upscaling is spatial autocorrelation. Previous studies which have compared chamber measurements with eddy covariance measurement have found discrepancies in the evapotranspiration estimates. One possible way to overcome this discrepancy involves incorporation sufficient number of sample points. The other factor involves incorporation of spatial heterogeneity. While in this paper, spatial heterogeneity does not appear to be a significant factor, previous studies have found the spatial structure of transpiration in forests to be modulated by the temporal drivers of transpiration (Adelman et al. 2008; Loranty

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et al. 2008). Future analysis of spatial autocorrelation can help to mechanistically scale up spatiotemporal processes.

References: Adelman, J. D. et al. 2008. Use of temporal patterns in vapor pressure deficit to explain spatial autocorrelation dynamics in tree transpiration. *Tree Physiology*. pp. 647-658.

Loranty, M. M. et al. 2008. Environmental drivers of spatial variation in whole-tree transpiration in an aspen-dominated upland-to-wetland forest gradient. *Water Resources Research*

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