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Interactive comment on "Combining surface reanalysis and remote sensing data for monitoring evapotranspiration" *by* M. Marshall et al.

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The manuscript would be greatly improved by addressing Josh's comments. To achieve this most effectively I suggest that we focus on the central goal of the study, which is to improve the NOAH LSM parameterization by incorporating a more robust canopy transpiration scheme that effectively leverages the information on vegetation activity provided by remote sensing observations.

A primary goal for mesoscale models such as NOAH-LSM is to specify sufficient detail of the underlying soil physics and vegetation physiology controlling land surface fluxes while at the same time minimizing the complexity and number of physical parameters required. While the multilayer soil hydrology component of NOAH-LSM meets this goal, the resistance-based vegetation component requires parameters whose estimation in

terms of both magnitude and seasonal dynamics remain problematic. The ecophysiological remote sensing approach of the PT-JPL model provides an alternative and robust method for estimating canopy transpiration without the limitations inherent to resistance-based approaches. Combining the NOAH-LSM soil hydrology and canopy interception routines with the PT-JPL canopy transpiration algorithm would therefore provide a more robust parameterization of land surface hydrology that more effectively meet the needs of mesoscale LSMs.

Towards this end, I suggest that we keep sections that relate to the PT-JPL canopy transpiration algorithm (LEc) and remove those related to the PT-JPL algorithms for soil evaporation (LEs) and interception losses (LEi) as they are not relevant to the aforementioned goal of the paper. By removing discussions of the LEs and LEi routines from the paper and focusing on LEc, we effectively address many of the issues raised by Josh related to evaluating the efficacy of these routines given the questionable quality of both the reanalysis and tower data for this purpose. In doing so, we retain the meritorius aspects of the manuscript that are most relevant and informative while avoiding those that distract from it. This would not require major restructuring or re-writing of the manuscript because the major elements of this refined goal of combining the NOAH-LSM routines for soil evaporation and interception losses with the PT-JPL canopy transpiration routine are already present and established in the manuscript.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 1547, 2012.