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Interactive comment on "Dominant controls of transpiration along a hillslope transect inferred from ecohydrological measurements and thermodynamic limits" *by* M. Renner et al.

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We thank the reviewer for his positive and encouraging comment on the manuscript. Although the Reviewer strongly supports the one of our mains findings that "transpiration is dominated by radiation forcing while VPD and wind speed adds no explanation power.", we want to emphasize that these findings are valid for this temperate forest. Under certain conditions vapor pressure deficit (VPD) and wind speed may contribute to the explained variance. For example very moist conditions with very low VPD could reduce transpiration. Also very dry conditions with high VPD could enhance potential transpiration rates. Such conditions were rarely found at our sites and therefore did not add to the explained variance. But clearly, these aspects should be investigated further

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Discussion paper

by a larger and more diverse data set of different climatic and topographic conditions.

The research focus of this manuscript was to determine the dominant controls on transpiration. Apart from the strong control of radiation, we found that transpiration rates and their response to potential evaporation were rather similar on the upslope sites, despite different aspect and stand structure. Only the downslope site with access to riparian water reached larger transpiration rates. The research design of the observation sites was structured to enable such comparisons to reveal the effects of topography on hydrological functioning (Zehe et al., 2015, HESS).

During the revision process we will take the advise of the referee to shorten the manuscript within the context of the comments of all reviews.

References Zehe, E., U. Ehret, L. Pfister, T. Blume, B. Schröder, M. Westhoff, C. Jackisch, et al. 2014. "HESS Opinions: From Response Units to Functional Units: A Thermodynamic Reinterpretation of the HRU Concept to Link Spatial Organization and Functioning of Intermediate Scale Catchments." Hydrol. Earth Syst. Sci. 18 (11): 4635–55. doi:10.5194/hess-18-4635-2014.

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