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Interactive comment on "Vegetation heterogeneity and landscape position exert strong controls on soil CO_2 efflux in a moist, Appalachian watershed" *by* J. W. Atkins et al.

Anonymous Referee #2

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A promising and novel study that have analyzed the impacts of vegetation heterogeneity and landscape position on soil CO2 efflux. The authors have done an enormous amount of work and the study will be an interesting contribution to the literature on this topic. I do have some questions with regard to the technical aspect of the paper which have been summarized below:

1. The use of an 11oC temperature threshold is still not clear to me. How did the authors arrive at this threshold? Were there any a prior analysis which the authors have not described?

2. One of the disadvantages of the threshold approach is it is empirical in nature

and hence cannot be applied beyond the particular research area. In that case, how are these results applicable in understanding carbon fluxes across other similar humid watersheds in different parts of the world?

3. By not delimiting data based on phenology (growing and dormant season), are the authors not losing the ability have a better understanding of the interaction between hydrometerological factors, phenology and soil respiration? This aspect needs to be discussed?

4. In section 2.3.1, plots were sampled between 9: 00 and 16:00 EST. It still isn't clear to me how the authors accounted for the diurnal variation in soil respiration? Were any time correction factor applied during calculation of soil respiration?

Interactive comment on Biogeosciences Discuss., 11, 17631, 2014.