

Interactive comment on “Partitioning the forest water balance within a boreal catchment using sapflux, eddy covariance and process-based model” by Nataliia Kozii et al.

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In "Partitioning the forest water balance within a boreal catchment using sapflux, eddy covariance and process-based model", N. Kozii and colleagues, present a comparison of water balance calculations made with measurements vs. a SVAT model in a boreal site in Sweden that has been the location of much intensive monitoring. In this paper, they are primarily bringing together the sapflux and eddy-covariance measurements from a single growing season to produce a calculation of evapotranspiration. In general, I found this work to be important and significant. They present the details of their work well and the comparisons between measurements and between measure-

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ments and model are convincing. Nonetheless, I believe that their manuscript could be improved. I found that it often read more like a lab report than an article. I would recommend that in general, they focus on situating their work in current literature / regional and global estimates of ET and improve the story of why their work matters. Additionally, the sentences were often long and cumbersome. I offer a few suggestions (first directly in the pdf file, which became corrupted, and then in the text file), but I believe that with aggressive editing, they could streamline the writing and make it a third shorter, which would improve the readability and allow space for more context.

I strongly recommend that they discuss the boreal ecosystem more in the introduction, that they improve the map to include all measurement points, and that they present the overall water balance equation that they are using in the beginning. They make some rather large assumptions and I believe that presenting the equation early in the paper will make that more clear and help them identify sources of error. I believe their discussion would benefit from a more physical process based explanation centered on the assumptions of their measurements and the model to explain the differences and agreement in the model vs. measurements. Although they do constrain the magnitudes of ET components, they do not really address seasonal variation beyond a description. I would refine this objective to make it clear that the study is limited to a single growing season, or else find a way to expand it to an entire year. What are the implications of the observed seasonal variation? I think the authors have a rather short term view of evaporation and transpiration research and I recommend that they expand their literature search to before the term “ecohydrology” was coined. The title is appropriate. The abstract could be more concise. There are a few points in the text when they mention results that were not shown in full, for example correlations between variables. I think that the supplementary material would benefit from figures and tables showing all relevant information. This would facilitate cross examination of their observations with those in other sites and in other studies. I recommend writing out more of the equations.

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I thank them for completing this work and sharing it with the community.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2019-541/hess-2019-541-RC1-supplement.zip>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-541>, 2019.