

Interactive comment on “The asynchronous response of carbon gain and water loss generate spatio-temporal pattern of WUE along elevation gradient in southwest China” by Xiangyang Sun et al.

Anonymous Referee #3

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The authors use a model, AVIM2, eddy covariance measurements at one site, and stable carbon isotope measurements to study the water use efficiency (WUE) of *Abies fabri* along an elevational gradient at Mt. Gongga.

I have to say that I have huge difficulties with this paper. In addition to the aspects discussed by the editor, the lack of a description of how the model was calibrated makes me question what the value of the model simulations is except for producing what is prescribed. A thorough description of how the model was calibrated is required in order to properly judge its performance and the results it produces. The validation does

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not convince me because with the supposedly large number of adjustable parameters, achieving good fitting statistics does not mean that the model correctly picture the changes along the elevational gradient.

The eddy covariance measurements are interesting, but again the information given is quite rudimentary, so that their quality is difficult to judge. What are the site characteristics, how and where were instruments mounted, was the lack of energy balance closure (which is at the high end!) accounted for in calculations of WUE?

Overall, I do not think that the approach the authors have taken, at least with the given amount of information, is suitable to answer the questions they pose and I thus suggest to reject the paper.

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