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Interactive comment on “Alternative methods to predict actual evapotranspiration illustrate the importance of accounting for phenology – Part 2: The event driven phenology model” by V. Kovalskyy and G. M. Henebry

Anonymous Referee #3

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The paper of Kovalskyy and Henebry combines their new developed event driven phenology model (EDPM) with a state of the art evapotranspiration (ET) model (VegET) to simulate ET for a range of agricultural sites. They use different phenological approaches to estimate the potential and performance of the EDPM derived ET estimates. The entire subject and the selected methods address relevant questions for BGD. Despite some necessary modifications and additional clarification the paper should be published.

As I submit this review after reading the already published reviews I will not repeat what

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is mentioned there, and only continue with aspects I do see important to be discussed / analysed.

Major points: Looking at the 6 different ways of estimating evapotranspiration it is important to note that the efforts to derive their initial setups is of different complexity. This is important if one would like to judge about the 'best' method. With the EDPM the authors either apply prescribed PTP's or use adequate training to define the PTP's. I cannot see a similar effort to construct initial settings, and therefore doubt that apart from the analysis shown they are a solid prove for the superior performance of the EDPM. Certainly the model itself is constructed to allow for this, but inadequate efforts have been applied for the others. For example, the authors did linearly fit between MODIS and AVHRR measurements to achieve full temporal coverage. This approach completely neglects the 8 day variability, which can be assessed in various ways.

Hereafter I see a large potential to reorganize the analysis with respect to satellite derived climatology's. Evaluation of results is based on entire growing season/year – what about the linear interpolation of 8 day satellite data – this is a source of error in the analysis. Do the results change when the models are driven for satellite observation dates only? At least parts of the analysis should support this idea, when one could compare only those days.

All other points I would have to make are already considered by the two other reviews.

Interactive comment on Biogeosciences Discuss., 8, 5335, 2011.

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