

Change made to caption of figure 1 to refer to **annual** maximum ALT.

Reviewer #1

The new Figure 4d is a good start at evaluating the model's predicted ALT. There are clearly very large differences between the TPDC dataset and the model output over large regions. For that reason, we need to see some quantification of the error. For example, what is the mean absolute error? This applies to ET and sublimation as well.

We assume reviewer #1 was referring to figure 1d, as figure 4 does not show ALT. For the benefit of readers we have added a panel to figure 1e (boxplots) to show the mean absolute errors and mean bias errors. As stated in the first paragraph of section Model Validation, the creators of the TPDC dataset have made clear to the research community that the distribution of TPDC ALTs is very likely (by their estimation) more narrow than reality. They attribute this to sampling bias. It is thus reasonable to assume that the MAEs that we report here are inflated. We also now report MAEs for sublimation and ET. Lines 304 and 306 of revised manuscript.

Reviewer #2

I only have one suggestion; which is totally optional. The language describing how subsurface runoff is conceptualized and simulated in the study could be clarified. For instance in the abstract maybe substitute "... the proportion of subsurface to total runoff ..." with " the proportion of total runoff exposed to subsurface pathways ...". Similarly, on Line 173 in the Modelling Approach section the authors could say "We use the term "subsurface runoff" for the water flux that has followed subsurface pathways into the stream."

I hope this is not being too pedantic.

We have made the changes in the abstract. The phrase now reads: **...while the proportion of runoff emanating from subsurface pathways is projected...**

We've also implemented the change as suggested for the Modeling Approach section.