

This study presents a modeling tool based on Google Earth Engine that allows the well-published remote sensing-based evapotranspiration model, DisALEXI, to be efficiently applied at the continental US and beyond. The study examined the uncertainty of the tool by comparing eddyflux ET data measured at selected sites and ET derived from the watershed water balance method at the HUC8 scale. The authors claim that the modeling tool works well the study region and performs better the OpenET ensembled ET at multiple scales. The authors also suggest stress index derived for this study is comparable to U.S. Drought Monitor drought signal (especially in humid region) and thus can be used for monitoring drought impacts.

We thank the reviewer for the positive feedback and for recognizing the significance and potential impact of the proposed modeling framework!

I think the modeling tool developed by this study has a huge potential to provide high resolution ET (e.g., 30 m that is most useful for a few applications) products although currently the resolution is 4-5 km.

We thank the reviewer for highlighting the strong potential of our ET modeling framework. The model integrates two spatial scales: ALEXI at coarse scale (4-5 km) and DisALEXI at finer scale (30 m). In this manuscript, we focus on the implementation of 30-m DisALEXI on Google Earth Engine. We will further refine the introduction and method sections to more clearly describe the multi-scale framework.

I have offered detailed comments (see attached) throughout the main text that needs authors to carefully address. Here are some highlights that I hope the authors can address before the work can be published.

We thank the reviewer for the detailed comments in the main text. We will revise the manuscript accordingly.

1. Model descriptions are needed to give readers a high level overview about how the model works and how it differs from other RS based models.

We thank the reviewer for this helpful suggestion. We agree that a clearer high-level overview would improve readability. We will expand the manuscript to provide a more comprehensive description of the model framework and further clarify its key differences from other remote sensing-based ET models.

2. Alternative model validation at the watershed scale might be useful. Please note that not all HUC8 watersheds are gaged (no references are given about the source of streamflow and ET data) and therefore comparing ET at the watershed level is still model to model comparison. It would make a strong case if the authors compare

modeled ET to derived ET from smaller gaging referenced watersheds like what the following papers did for general hydrological model validations that use commonly used datasets published by USGS. The gaged watersheds offer more convincing ET values than the HUC8 (that are rather large and heterogenous). The lathe HUC8 can have issues of ET such as P

We thank the reviewer for this helpful suggestion and for pointing us to the relevant references. We agree that not all HUC8 watersheds are gaged and that watershed-scale comparisons may introduce uncertainty. In our analysis, we used USGS streamflow data for HUC8 watersheds with available gage stations to conduct the water balance validation.

We will revise the manuscript to clearly describe the data sources and methodology, including the use of USGS streamflow data, to avoid any confusion. Following the reviewer's suggestion, we will clarify the limitations associated with HUC8-scale validation and discuss the advantages of using gaged basins for ET evaluation.

Li, C., et al, 2020. Impacts of urbanization on watershed water balances across the conterminous United States. *Water Resources Research*, 56(7), p.e2019WR026574.

Caldwell, P.V., et al. 2012. Impacts of impervious cover, water withdrawals, and climate change on river flows in the conterminous US. *Hydrology and Earth System Sciences*, 16(8), pp.2839-2857.