Dear authors,

I want to state that I have (co)-developed several physically based and semi-physically-based hydrological models myself and extensively applied several others. But I have not used SWAT or one of its derivatives so far. Being a non-SWAT-modeller, your further explanations as a response to my queries were not convincing to me. The question is: what kind of process is the modelled "Revap" flux in reality? According to your explanations given, and further displayed both in Figure 2 (from Marhaento et al., 2017) and in the attached figure A1 (as a screen-shot from SWAT), "Revap" seems to be a flux from the shallow aquifer into the soil root zone.

But what about actual evaporation? According to the definition of the American Meteorological Society it is the "Quantity of water evaporated from a region comprising open water or ice surfaces, bare soil, or vegetation-covered soil". I did a small study on how this is conceptualized in SWAT. I find the article from Abiodun et al., 2018 rather informative. On page 2789 they state clearly: "Total ET (AET) in SWAT is made up of four components: canopy evaporation, transpiration, soil evaporation and groundwater ET (Revap)." This is also correctly shown in their Figure 1.

And I learned that total evaporation in SWAT is composed of actual evapotranspiration Ea (comprising transpiration through the plants, soil evaporation and evaporation from wet canopy, i.e. intercepted water). REvap in SWAT is an (somewhat mysterious) additional process from the shallow aquifer through the unsat. soil directly into the atmosphere. I find this strange, because I would include this this flux in the "soil evaporation" process, but SWAT account for this as additional process.

So how to proceed now?

I recommend you please correct your manuscript regarding this process conceptualization: Figure 2 must be adapted in the sense of the figure 1 in the Article from Abiodun et al., 2018. That means Revap is part of total Evaporation, i.e. is transmitted directly into the atmosphere. And your equation 7 should also be adapted. I recommend writing it as:

"SWt = SWo + Sum(R – Qsurf – Ql – Ea – Revap – DA – Qb)" or:

"SWt = SWo + Sum(R – Qsurf – Ql – Ea – Wseep), where Wseep = Revap + DA + Qb"

I would also like to see an overall equation for the overall water balance (e.g. P = E + Q + Losses +dS), and you explain the terms E (4 components), Q (3 components), Losses (DA) and dS (soil moisture change). Simple, but necessary. It would also be much better if you re-arrange table 8 in a way that it is easier for the reader to follow the water budget. E.g. re-arrange tab.8 in such a manner, that the lines of the main processes E and Q are grouped together (in that sense Qt is part of Q-group; Revap is Part of E-group etc.). PET is not part of the actual water balance. You may also include Revap in your Figure 7, as SWAT simulates it as an important part of the water budget.

I also suggest you discuss in the concluding section the Revap (mis)conception of SWAT. Is it plausible that about 25% of evaporation stems from "shallow aquifer evaporation"? Is this a rather swampy area? Does the region contain huge wetland with mostly flat terrain? Otherwise, in hilly or less humid regions, this concept does not match well real conditions, I think. Abiodun et al. also discuss this concept

Olanrewaju O. Abiodun, Huade Guan, Vincent E. A. Post, and Okke Batelaan: Comparison of MODIS and SWAT evapotranspiration over a complex terrain at different spatial scales. Hydrol. Earth Syst. Sci., 22, 2775–2794, 2018