The study of Stuenzi et al. contribute to important discussion how the vegetation cover influences the surface energy balance and thus thawing of permafrost and a possible feedback to the atmosphere. The authors have shown how the different vegetation cover influences the ground surface temperature and top canopy surface energy balance , but they have waived to show the difference in active layer thickness which could increase the importance of the study.

The authors have answered very detailed to the reviews, which I really appreciate. They have included one additional validation site. Even so, I would recommend further efforts to validate the simulations against measurements. For the forest stands only a short period of ground surface temperature is evaluated. It is interesting to see that the assumptions lead to large differences of the ground and top canopy energy budget, which unfortunately is not underpinned with measurements. Looking at the surface energy balance, I doubt the significance of the difference between forest TOC and grassland, as differences between modeled and measured grassland are similar.

In general, I would also appreciate further details on the various assumptions made. Most of the methods used are described by using reference but the reader need to go through all the different studies to which the authors refer to. For example, how is the heat flux within the soil layer calculated, as this is of great importance in permafrost regions. Nonetheless, I would like to point out that this study is very well structured and written, which enables the reader to follow the manuscript very easily.