The author assesses the upscaling methodologies for daily crop transpiration considering different water stress levels and different production systems. The data presented in this study is very valuable, and will make a great contribution to the community for studying this topic, if the data could be made publicly accessible. Such open science practice will also increase the impact of authors' work.

Thank you for your recommendation. Unfortunately, the data used in this study are still being utilized in other ongoing work within our laboratory. However, the data may be made available upon request, as indicated in the data availability section.

In the Section 2.3.1, soil water potential, stomatal conductance etc. were measured to determine the best moment to estimate both Th and Td. On the other hand, this manuscript does not use soil water potential, stomatal conductance etc. to quantify/estimate daily crop transpiration under different water status? Please authors clarify.

First, there seems to be a misunderstanding. Soil water potential was not measured in this study. Instead, we measured stem water potential, stomatal conductance, and leaf transpiration to evaluate the daily pattern of almond trees under different levels of water stress and their relationship with measurements of actual transpiration.

We believe that it was unnecessary to estimate transpiration using other methods because actual transpiration was obtained through (1) the sap flow sensor and (2) the TSEB models. The use of these two methods is sufficient to achieve the main objective of this study.

In the abstract, the author claimed that 'The improvement of ETp estimations or more sophisticated ETp models could solve this issue'. While the author suggests briefly that canopy architecture/stucture could be a direction to pursue further to improve ETp estimation. It does not explain why this is deemed important, and what is the pathway forward to include this into the estimation.

Thank you for your comments. We have tried to clarify these issues by adding the following sentences to the abstract:

The use of ETp as a reference variable could address this issue, as it incorporates various aerodynamic and radiative properties associated with different canopy architectures that influence the daily Th-SF pattern. However, more accurate ETp estimates or more advanced ETp models are needed.

We believe that the discrepancy between leaf area index (LAI) and the fraction of intercepted photosynthetically active radiation (fIPAR) may influence the accuracy of ETp model and, consequently, its use as an upscaling parameter. However, assessing ETp is not an objective of this work. Therefore, a more thorough evaluation of ETp models should be undertaken in future research. A more detailed analysis of this issue can be found in the discussion section, between lines 640 and 655.

This reviewer is wondering why the author only focus on the potential improvement on ETp model, but not on actual ET? If canopy stucture is important for ETp, is it not important for actual ET?

We fully agree with your observation. We emphasized the importance of improving shortwave transmittance models for estimating ET fluxes between lines 645 and 650. We chose not to elaborate further on this point because it was already covered in a previous

paper (DOI: 10.1007/s00271-023-00888-1). However, we wanted to highlight the enhancement of ETp models due to their potential as scaling parameters, which is the main objective of this study.

Reference:

Quintanilla-Albornoz, M., Miarnau, X., Pelechá, A., Casadesús, J., García-Tejera, O., and Bellvert, J.: Evaluation of transpiration in different almond production systems with two-source energy balance models from UAV thermal and multispectral imagery, Irrig. Sci., https://doi.org/10.1007/s00271-023-00888-1, 2023.