

### Referee comments (marked in italics)

*I would like to thank the authors for the revision of their manuscript. I understand their struggle with two opposing sets of comments, and think that the current version of the manuscript is a well-balanced compromise between these. I have a few minor suggestions (below), and I recommend publication of this manuscript to support the discussion and usage of leaf temperature (measurements and models) in our analysis of heat wave impacts.*

→ Response: We are grateful for the appreciation of our work and the revision.

- p. 1/l. 9: replace "Climate change models" with "Climate models"

→ Response: changed as suggested (p 1 li 9)

- p. 1/l. 15: *the sentence "in excess of 10C ... to even 20C" could be misunderstood: The range is not between 10 and 20 degrees, but rather between 0 and 10/20. Also, the given upper limits (10/20 degrees) are obtained only when taking rather extreme (and possibly very unlikely) conditions (such as high RH and closed stomata, Fig. S9) into the comparisons. I do not think that this is within the scope of something the user would understand as a "fluctuation" (p. 1/l. 15), the conditions that need to be met to obtain these differences are so extreme that they will rarely occur within a short period of time. I would recommend a more moderate statement that better reflects real conditions.*

→ Response: We rewrote part of the sentence in a neutral tone (p 1 li 14-15). This should avoid further misunderstandings.

- p. 3/l. 12: *The addition "via stomatal responses" is unnecessary here, the authors cannot exclude other impacts (e.g. a change in near-surface RH resulting from the change in irrigation).*

→ Response: omitted as suggested (p 3 li 12)

- p. 4/l. 30: replace "such as used here" with "as used here", or "such as the one used here".

→ Response: changed as suggested (p 4 li 30).

- p. 4/l. 30: *I do not think that model and IR observations exclude each other: We will need more IR observations to evaluate model performance (e.g. to perform a more direct comparison under heat wave conditions). But in general I like the addition of the statement on availability/possibility of IR measurements.*

→ Response: We rewrote the sentence to avoid the idea that both are mutually exclusive (p 4 li 30-32).